Changes in stem water content result in underestimated sap flux density with thermal dissipation probes (TDP)

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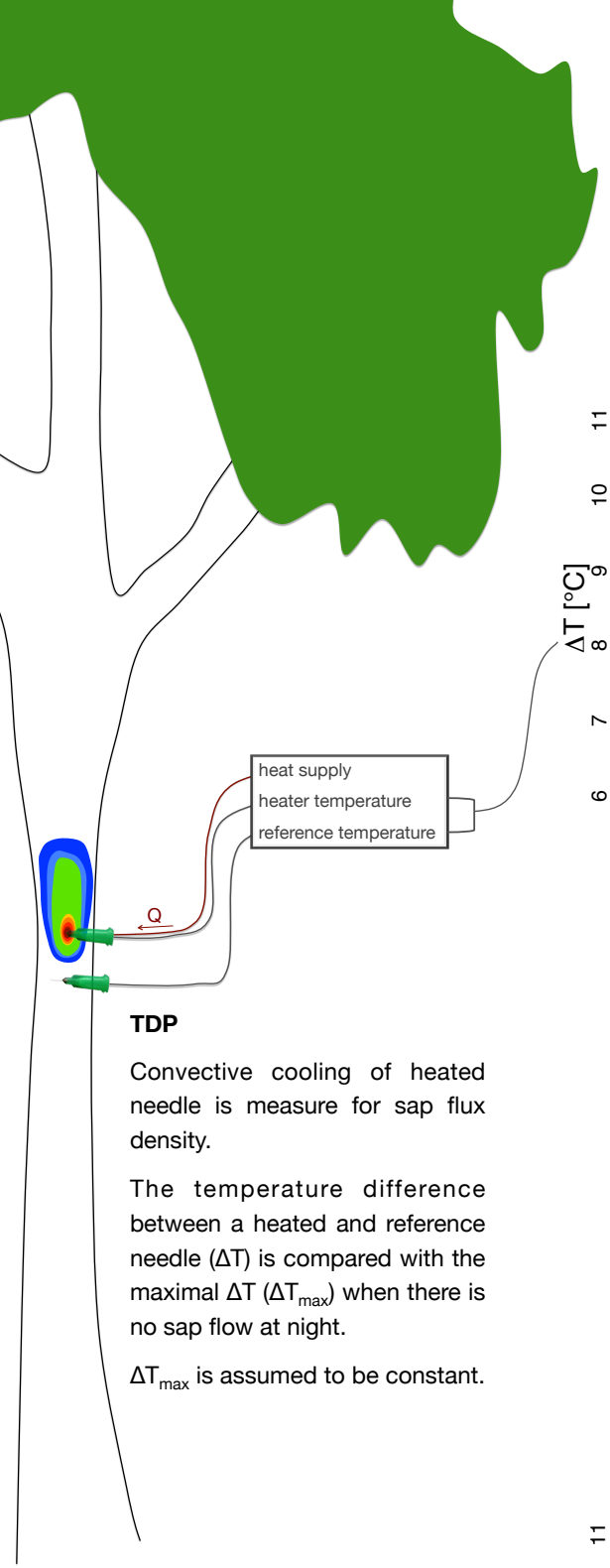
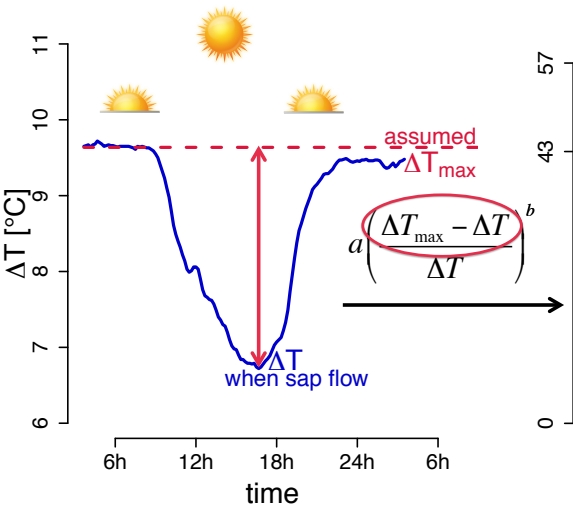


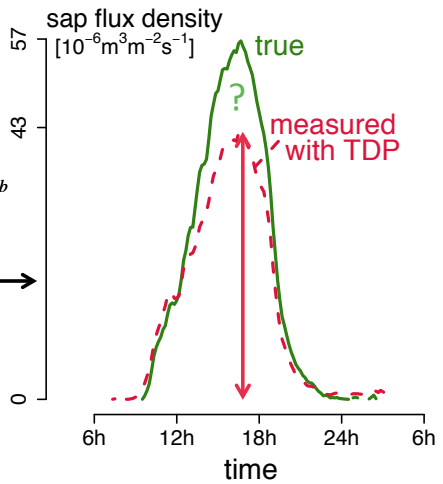
TDP

Convective cooling of heated needle is measure for sap flux density.

The temperature difference between a heated and reference needle (ΔT) is compared with the maximal ΔT (ΔT_{max}) when there is no sap flow at night.

ΔT_{max} is assumed to be constant.





Problem

TDP often underestimates sap flux density.

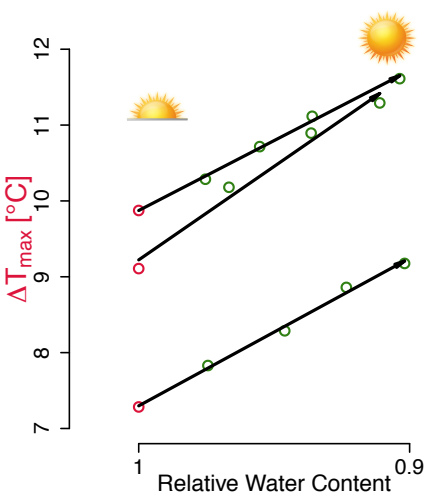
Findings

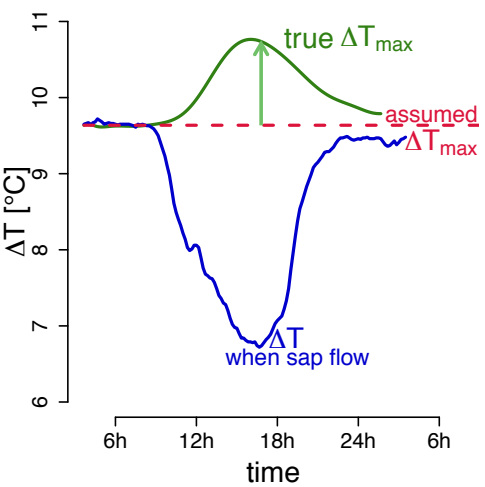
Water content of the stem decreases during the day.

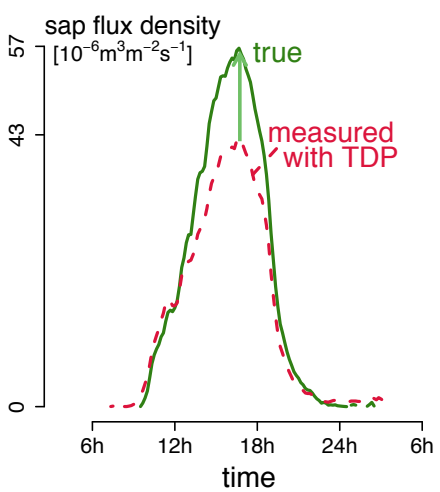
ΔT_{max} increases with decreasing water content.

Conclusion

Daily decrease in water content in the stem results in underestimation of sap flux density with TDP.







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